MIDAS LEM Experiment F LEM_Experiment Datab	Page LEM Equipment Analysis Run Summ pase Apparatus SlowControlEquipment Co	naries ToDo New MuE4 omputing VME_DAQ Detectors					
K V Login	Back Find Last day Last 10	Help					
Message ID: 4072 Entry	y time: Thu Apr 24 07:03:35 2008						
Run:	169						
Author:	AS,BW						
Туре:	Info						
System:	General						
Subject:	Ag 2x2cm2 on Ni plate						
Ag 2x2cm2 (foil from G	Goodfellow) on Ni sample plate, Guard Of	f					
 t0-shifts for Bpar n Danfysik degausse new Ar/N2 modera good settings for 1 	nade and checked. d (degauss_from_8Aminus.lar) ntor, Ar: 200A,6:20min at 1e-6mbar MCGJ, N2 .8K sample, BH=5000, TFL1 NV=4	2: 12A, 2:40min at 2e-7mbar MCGJ					
Thu Apr 24 09:58:26 200	08						
 start ZF, T=18K, T list of all CryoVac t 	r=15kV, E=2keV run transferlines see elog:Database/91						
Thu Apr 24 10:12:39 200 started ZF, T=18K, Tr=15 stability)	08 5kV, E=4, 6, 10keV autorun. After that 20keV	will done by hand (check neg. sample HV					
Thu Apr 24 13:46:03 200 at 13:50 I will stop the cu ready to check the HV po)8 urrent run, since the service technician of Heir wer supplies.	nzinger (Sep61 HV power supplies) will be					
Thu Apr 24 13:53:07 2008 First ZF measurements (black 2keV, red 4keV, green 6keV, blue 10keV, cyan 20keV). The 2keV data are very odd, either the Ag surface is bad on a few nm scale and hence the \sim 1/usec is due to this contamination, or there is a Ni effect at low energies we do not understand.							
Thu Apr 24 15:45:28 2008 According to the service technician of Heinzinger the internal HV plug on the neg. supply is bad. It seems this is not a problem for now and we can go on, however it should be replaced. The delivery time for this internal plugs is about 6-8 weeks. Fruthermore, it cannot be fixed here but needs to go back to Heizinger (almost like Bruker). This means we will need a temporary solution during the fix. Details to be discussed with Thomas Rauber and Konrad.							
Thu Apr 24 18:03:48 200 Plan for the night:	Thu Apr 24 18:03:48 2008 Plan for the night:						
 RA scan at 10keV to find "optimal" RA steering. with the "optimal" RA steering, perform an energy scan during the night. tomorrow: complete the RA scan for all energies. 							
Fri Apr 25 08:04:54 2008 First results of the RA-scan for Bpar=95.08G, T=18K, Tr=15kV, E=10keV: Figure 2 shows the asymmetry versus RAR-RAL. Figure 3 shows the alpha versus RAL-RAR. Fit results obtained from asymmetry-fits so far. The asymmetry RA-scan shows a very broad maximum centered at about RAL-RAR=-0.29kV, consistent with the 2007 runs. This is a bit surprising since in 2007 we used the 2-segment RA, whereas now we have the new 4-segment RA. It looks as if the 4-segment RA steering is as efficient as the 2-segment-RA one.							
One thing which is puzzling is alpha vs. RAL-RAR as shown in Figure 3. The point where alpha==1 is for RAL-RAR=-0.537kV. That alpha==1 is not corresponding to the maximum in asymmetry vs. RAL-RAR is not so surprising due to the Ni plate, though for a large sample as this 2x2cm2 Ag it took me a bit as a surprise.							
Fri Apr 25 10:18:21 2008 For a comparison I also add results from single histogram fits (Fig.4-6). Doesn't change things much, but							

Fri Apr 25 14:00:30 2008 Prepare for LHe dewar change at sample so that it doesn't need to be changed during the weekend. Also will refill the moderation cryo.

Fri Apr 25 15:39:09 2008 sample LHe changed. Moderation cryo refilled. Guard On setup mounted. Started RA-scan Bpar~95G, T=18K, Tr=15kV, E=2keV, Guard On QSM612 tripped, error message: Thermorelais WSX61b tripped, error message: Phasenausfall 2

Fri Apr 25 17:11:03 2008 Further plans for the weekend:

- 1. RA scan at 2keV with guards ON, B=95G (3.03A)
- 2. One run at 20keV with guards ON, B=95G
- 3. Complete RA scans at 2,4 and 6 keV, guards OFF, B=95G
- 4. RA scans at 2,4,6,10 and 20 keV, guards OFF, B=146G (4.57A) [steering used with the two segment RA: RAL-RAR~-0.53kV]
- 5. RA scans at 2,4,6,10 and 20 keV, guards OFF, B=260G (8.08A) [steering used with the two segment RA: RAL-RAR~-1.10kV]
- 6. One run at 2keV with 12kV transport settings (or less...), guards OFF, ZF (0.00A)

Fri Apr 25 17:15:25 2008 Add two new figures: asymmetry, alpha, E-scan for RAL-RAR=-0.29kV (Tr=15kV, T=18K). Results from single histo fits A(t) = A cos() gauss()

Fri Apr 25 18:28:42 2008

Add a 10kV and 20kV RA scan comparison. 20keV (red stars), 10keV (black bullets), single histo fit results.

F ((keV)	opt.	RAI -RAR	(kV)	Guard
		Upt.			Juaru

		Guara
20	-0.227	off
10	-0.265	off
2	-0.43	on

Fri Apr 25 22:43:21 2008 Added 2 Figures: 2keV RA-scan Guard On. The max. asymmetry ~0.145 is smaller than the measured 2keV Guard Off ~0.165 RAL-RAR=-0.3! The optimal RA steering for Tr=15kV, 2keV, Guard On is RAL-RAR= -0.43kV

Fri Apr 25 23:28:26 2008

A short comparison between Tr=15kV, T=18K, E=20keV, RAL-RAR=-0.3kV, Guard On/Off

What	Guard Off	Guard On
Run	190	210
Asym	0.252(1)	0.253(2)
Alpha	1.107(2)	1.105(3)
Rate (1/usec)	0.0(2)	0.0(3)
Phase (°)	13.8(4)	14.4(7)
Field (G)	95.04(3)	95.00(6)

I switched back to the Guard Off configuration. For the night and tomorrow morning the following autorun sequence is on the flight:

2keV, 4keV, 6keV, full RA-scan. Each energy is taking something like 5h (if everything is going smooth).

Sat Apr 26 13:19:21 2008 [BW]

Since not much analysis has been done yet (...), I present a comparison between the RA-scans at 2keV with guards ON and OFF (attachments 14-18).

The analysis was done using single histogram fits considering only the precessing component, fitrange: $0.15-10.0\mu s$ (ATTENTION: THIS DIFFERS FROM THE OTHER FITS IN THE ELOG-ENTRY, WHERE IS FITTED FROM t= $0.0\mu s$).

We clearly see that the precessing Ag-asymmetry DECREASES when the guards are ON, while all other parameters are about the same.

LEM equipment seems to be always good for surprises.....or in other words: simple calculations are not good enough {GN}

A comparison of the RA-scans with different energies and B=95G will follow, when the 6keV-scan is finished.

Sat Apr 26 18:00:50 2008

The 95G TF autorun has finished. I set the Danfysik to 4.57A and started a new autorun for the RA-scans at the same energies.



Attachment 1:

Ag-on-Ni-ZF.png 28 kB Uploaded Thu Apr 24 18:52:19 2008 | Hide | Hide all























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Message ID: 4078 Entry time: Sat Apr 26 19:14:20 2008							
Run: 243							
Author: BW							
Type: Info							
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Subject	:		Ag 2x2cm2 on Ni,	B=95G TF sun	nmary		
For olde For a co The atta	er entries omparison ached figu	concerni betweei ires sum	ng the RA-scans at n guard ON and gumarize the TF B=9	t B=95G refer t lard OFF measu 15G RA-scans at	to elog:LEM_I prements at 2 t the implant	Experiment/4072 keV see also elog:LEM_E ation energies 2,4,6,10 a	Experiment/4072 and 20 keV.
The dat contribu In <i>this</i> a shrinks Attachn asymm The line These c	a were fit utions of n analysis w with incre nent 6 sho etry deter es are just lata are al	ted simp nuons st e do <i>not</i> easing er ows the e mined b guides t so sumn	ly from t=0.15-10 opping in the Ni-pl see a big E-deper lergy (attachment energy-dependence y parabolic fits to t to the eye. narized in the table	.0µs to A*cos() ate are conside idence of the m 5). e of the "optimu the measured p e below:	*gss() with sered. leasured field um" RA-steer recessing asy	single histogram fits no l (attachment 4). The de ring and the correspondir ymmetry.	o non-precessing polarization rate ng maximum
F[ko]/]	ont RAL	-RAR[\/]	max asymmetry	avg Field [G]			
2	-328(11)		0.156(1)	95.09(4)			
4	-310(13))	0.192(2)	95.16(3)			
6	-268(5)	·	0.2076(5)	95.13(3)			
10	-276(20))	0.229(1)	95.09(3)			
20	-250(27))	0.254(1)	95.01(2)			
Attachn	nent 1:		Ag-on-Ni_RA-scar Uploaded Sat	n_2+4+6+10+2 Apr 26 20:1	20keV_guard 9:03 2008	sOFF_1gss_h13_Asy-vs- Hide Hide all	RA.png 25 kB
	0.25	B=9 E[ke ^v 20	5G V]	• • •	Guard	ds OFF	
mmetry	0.20	10			•		
As)	0.15	6			╶┸╶╻		
	0.10 -1.	0	0.8 -0.6	-0.4	-0.2	0.0 0.2	
			R	AL-RAR [k	.V]		

 MIDAS LEM Experiment Page
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MIDAS LEM_E	LEM Exp xperimer	periment l nt Datat	^D age LEN Dase Appa	1 Equipr aratus	nent Anal SlowContr	ysis│ Rur olEquipme	Summaries	s ToDo New Mu Iting VME_DAQ	IE4 Detectors
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Messag	e ID: 408	32 Entry	/ time: Sun	Apr 27	00:08:00 2	008			
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Author:			BW						
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System	:		Analysis						
Subject	:		2x2cm2 Ag	g on Ni,	B=145G				
Here are The fits the sign	e the res for the F al is fitte	ults for th RA-scans ed!	ne B=145G are done ar	RA-sca nalogou	ns. s to those i	n elog:LEN	1_Experime	nt/4078 - only the	precessing part of
E[keV]	opt. RA	L-RAR[V]	max. asyn	nmetry	avg. Field	[G]			
2	-624(11	L)	0.140(2)		144.72(4)				
4	-607(14	1)	0.178(2)		144.68(2)				
6	-568(10))	0.197(2)		144.61(4)				
10	-527(11	L)	0.224(1)		144.63(1)				
20	-513(24	1)	0.244(2)		144.53(2)				
Attachm	nent 1:		Ag-on-Ni_ 26 kB Uj	TF145G oloade	_RA-scan_2 d Wed Ap	2+4+6+10 r 30 15:)+20keV_gu 56:53 200	ardsOFF_1gss_h13 08 Hide Hi	3_Asy-vs-RA.png de all
	0.30 B=14		45G					E[keV]	
	0.25		-	•	•	-	• •	20	
metry	0.20		-					10	
Asyn	0.15								
	0.10							2	
	0.05								
	-1	.2 -	1.0 -0	0.8	-0.6	-0.4	-0.2	0.0	
	RAL-RAR [kV]								
Attachm	nent 2:		Ag-on-Ni_7 26 kB Up	FF145G Doade	_R <mark>A-scan_2</mark> d Wed Ap	2+4+6+10 r 30 15:)+ <mark>20keV_gu</mark> 57:11 200	ardsOFF_1gss_h13)8 Hide Hi	3_Alpha-vs-RA.png de all







MIDAS LEM Experiment I LEM_Experiment Datab	Page LEM Equipment Analysis Run Summaries pase Apparatus SlowControlEquipment Compu	i│ ToDo│ New MuE4 ting│ VME_DAQ│ De	tectors					
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Message ID: 4101 Entry	/ time: Wed Apr 30 22:23:46 2008							
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Subject:	Ag 2x2cm2 on Ni plate							
After the long break here	now como moro data. An 2x2cm2 on a Ni cample	plata T-19K Brar TE	2600					

After the long break here now some more data: Ag 2x2cm2 on a Ni sample plate, T=18K, Bpar TF260G, RA-scan (for the 145G RA-scan see elog:LEM_Experiment/4082, 95G TA-scan see elog:LEM_Experiment/4078).

For RAL-RAR > -0.6kV we bearly hit the sample anymore (at least for 2, 4keV), therefore I removed the RAL-RAR=-0.3kV runs from the autorun.

For getting an idea, how the field distribution of those runs look like, see attachment 7.

Thu May 1, 21:48: We really need GEANT simulations of the beam to fully understand these results. [GN]

Thu May 1 12:24:02 2008: Going to refill Moddy and changing LHe on sample, since accelerator is still down due to EIC problems. Thomas+Zaher.

Thu May 1 13:53:35 2008: LHe Moddy refilled, LHe sample dewar changed; restarted autoRun, beam is back.

Fri May 2 10:37:58 2008 Updated graphs and table. (AS)

E[ke	eV] opt. RAL-RAR[V]	max. asymmetry	avg. Field (G)	
2	-1476(25)	0.096(2)	258.71(8)	
4	-1482(14)	0.130(2)	258.48(5)	
6	-1482(14)	0.150(2)	258.46(5)	
10	-1442(13)	0.176(2)	258.31(3)	
20	-1379(12)	0.223(2)	258.27(3)	
Attac	hment 1:	Ag-on-Ni_RA-scar Uploaded Fri	n_TF260G_gua May 2 11:32	rdsOFF_1gss_h13_Asym-vs-RA.png 17 kB :50 2008 Hide Hide all



Attachment 3:

Ag-on-Ni_RA-scan_TF260G_guardsOFF_1gss_h13_RelAsymR-vs-RA.png 20 kB Uploaded Fri May 2 11:33:17 2008 | Hide | Hide all





